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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,171	11/13/2006	Husam R. Arafat	0837RF-H549-US	5512

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EXAMINER	
KREINER, MICHAEL B	

ART UNIT	PAPER NUMBER
3644	

NOTIFICATION DATE	DELIVERY MODE
05/26/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JIM@WALTONPLLC.COM

Office Action Summary	Application No.	Applicant(s)	
	10/568,171	ARAFAT ET AL.	
	Examiner	Art Unit	
	Michael Kreiner	3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 21-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-16 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over G. S. Wing (U.S. Pat. No. 3,135,486) in view of Carlson et al. (U.S. Pat. No. 4,976,396).

Regarding claim 1, Wing teaches a leading edge member (21 in fig. 1) for an aircraft comprising: an exterior surface (col. 2 line 45) and an opposing interior surface (col. 2 line 52) forming a surface thickness between; wherein at least one pocket is recessed into the interior surface (23 in fig. 3, at least one pocket is disposed solely within the leading edge member, as clearly shown), each pocket defining a region of the leading edge member having a pocket thickness that is less than the surface thickness of the leading edge member, each pocket being configured to deform in response to an impact from an object with the leading edge member; wherein the leading edge member is configured for attachment to a substructure (fig. 4); such that the exterior surface of the leading edge member forms a second airfoil member of said airfoil (the forward member of the airfoil in Wing is the second member).

Wing fails to teach a first airfoil member. Carlson teaches a partial airfoil skin which is a first airfoil member of an airfoil (horizontal stabilizer 20). It would have been obvious to one of ordinary skill in the art at the time of the invention to attach horizontal stabilizers to the aft end

of the leading edge member of Wing (see Wing fig. 7) such that the aircraft of Wing is provided with control means to maneuver the aircraft.

Regarding claim 2, Wing teaches the leading edge member according to claim 1, wherein the leading edge member (col. 3 line 34) forms the leading edge of a wing member (col. 1 line 1).

Regarding claim 3, Wing teaches the leading edge member according to claim 1, wherein the leading edge member (col. 3 line 34) forms a leading edge (as previously discussed). Wing fails to teach a horizontal stabilizer. Carlson teaches an airplane with horizontal stabilizers (20 in fig. 1, col. 6 lines 17-20) as well as wings (14 in fig. 1, col. 6 lines 17-20). It would have obvious to one of ordinary skill in the art at the time of the invention to apply Wing's reduced-weight leading edge to horizontal stabilizers in order to reduce the weight of an aircraft.

Regarding claim 4, Wing teaches the leading edge member according to claim 1, wherein the leading edge member (col. 3 line 34) forms a leading edge (as previously discussed). Wing fails to teach a vertical fin. Carlson teaches an airplane with a vertical fin (18 in fig. 1, col. 6 lines 17-20) as well as wings (14 in fig. 1, col. 6 lines 17-20). It would have obvious to one of ordinary skill in the art at the time of the invention to apply Wing's reduced-weight leading edge to a vertical fin in order to reduce the weight of an aircraft.

Regarding claim 5, Wing teaches the leading edge member according to claim 1, wherein the pockets are formed by a chemical etching process (col. 2 lines 56-7).

Regarding claim 6, no weight is given to the process by which the pockets are formed, since the claim is drawn to an article and not a method.

Regarding claim 7, Wing teaches the leading edge member according to claim 1, wherein the leading edge member (col. 3 line 34) is curved about a longitudinal axis so as to form an upper airfoil surface and a lower airfoil surface (fig. 1, col. 2 lines 48-50).

Regarding claim 8, Wing teaches the leading edge member according to claim 7, wherein the at least one pocket comprises: a plurality of pockets (23) arranged in a selected pattern over the interior surfaces of the upper airfoil surface and the lower airfoil surface (fig. 3).

Regarding claim 9, Wing teaches the leading edge member according to claim 8, wherein each pocket (23) is formed in one of the following geometric shapes: circle, oval, rectangle, square (fig. 3).

Regarding claim 10, Wing teaches the leading edge member according to claim 8, wherein the pattern of pockets on the interior surface of the upper airfoil surface is a mirror image of the pattern of pockets on the interior surface of the lower airfoil surface (fig. 3).

Regarding claim 11, Wing fails to teach different pocket sizes. It would have been obvious to one of ordinary skill in the art at the time of the invention to create different pocket patterns on opposing sides of the leading edge member. Airfoils typically have a concave under-camber, which greatly reduces the risk of bird collision, and thus reduces the need for reinforcement. The weight of the wing could be minimized by removing more material from the lower surface, resulting in a non-mirror image between the lower and upper surfaces.

Regarding claim 12, Wing teaches the leading edge member according to claim 1, further comprising: at least one rib member (30 in fig. 4) connected to the interior surface of the leading edge member for attaching the leading edge member to a substructure of the aircraft (col. 3 lines 17-22).

Regarding claim 13, Wing teaches the leading edge member according to claim 1, further comprising: a stiffening means (30 and 31) connected to the interior surface of the leading edge member for providing localized stiffness to the leading edge member.

Regarding claim 14, Wing teaches the leading edge member according to claim 13, wherein the stiffening means (30) is an elongated I-shaped beam (30 has flanges 32 and 33 along its top and bottom, giving it an I-beam cross section).

Regarding claim 15, Wing teaches the leading edge member according to claim 13, wherein the stiffening means (31) is not connected to a substructure of the aircraft (40) (col. 3 *l.* 48-54).

Regarding claim 16, Wing teaches the leading edge member according to claim 13, wherein the stiffening means (30) is also connected to a substructure of the aircraft (40).

Regarding claim 21, Wing teaches that the leading edge member is attached to the substructure using at least one fastener 31a.

Regarding claim 22, Wing teaches that the leading edge member is configured for detachment from the substructure by removing the at least one fastener (fig. 4, the leading edge member is attached only by the rivets, and so is configured for detachment by removing these rivets).

Regarding claim 23, Wing as modified teaches that the second member of the airfoil (front portion in fig. 1) is upstream from the first portion of the airfoil (rear portion in fig. 1 and 7 of Wing is where horizontal stabilizers are attached).

Regarding claim 24, Wing as modified teaches that the leading edge member is upstream from the partial airfoil skin (Wing fig. 1 and 7).

Response to Arguments

Applicant's arguments with respect to claims 1-16 and 21-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kreiner whose telephone number is (571)270-5379. The examiner can normally be reached on Monday-Friday 9am-5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571)272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. K./
Examiner, Art Unit 3644

/Timothy D. Collins/
Primary Examiner, Art Unit 3643